

## AMENDMENT

### In the Claims

None of the claims are amended herein. A copy of the claims as they presently stand are provided for the Examiner's convenience.

1. (Original) A method for diagnosing a failure in a network switching device comprising:

receiving a data packet containing a debug information element (IE) at the network switching device;

extracting the debug IE from the data packet;

performing at least one diagnostic function on the network switching device in response to information contained in the debug IE.

2. (Original) The method of Claim 1, further comprising communicating results of said at least one diagnostic function from the network switching device to a selected end point connected to the network switching device via a communications link.

3. (Original) The method of Claim 1, wherein the debug IE is embedded in a connection-management message.

4. (Original) The method of Claim 1, wherein the debug IE is formatted so as to be propagated transparently across network switching devices that are not configured to recognize the debug IE.

5. (Original) A method for diagnosing a failure in a network switching device comprising:

embedding a debug information element (IE) in a message;

receiving results of at least one failure diagnostic function from a network switching device configured to respond to the debug IE,

wherein the debug IE is formatted so as to be propagated transparently across network switching devices that are not configured to recognize the debug IE.

6. (Original) The method of Claim 5, wherein the debug IE is embedded in a connection-management message.

7. (Original) The method of Claim 5, wherein the debug IE includes information specifying a network switching device on which the failure diagnostic function is performed.

8. (Original) The method of Claim 1, wherein the debug IE includes information identifying said at least one failure diagnostic function.

9. (Previously Presented) A method for diagnosing a failure in a connection path comprising a plurality of nodes in a communication network, comprising:

embedding a debug information element (IE) in a data packet;

propagating the data packet to a plurality of switching devices corresponding to respective nodes along the connection path;

extracting the debug IE at selected switching devices among said plurality of switching devices; and

performing at least one diagnostic function on targeted switching devices among said selected switching devices in response to information contained in the debug IE.

10. (Original) The method of Claim 9, wherein the debug IE is embedded in a connection-management message.

11. (Previously Presented) The method of Claim 9, wherein the network comprises a plurality of Asynchronous Transfer Mode (ATM) switching devices.

12. (Original) The method of Claim 9, wherein the debug IE includes information specifying the targeted switching devices.

13. (Original) The method of Claim 9, wherein the debug IE includes information identifying said at least one failure analysis function to be performed.

14. (Original) The method of Claim 9, wherein the selected switching devices correspond to switching devices supplied by a particular vendor.

15. (Previously Presented) The method of Claim 14, wherein the debug IE is encoded in the data packet such that it is passed along or dropped by switching devices at the nodes of the connection path that are not supplied by the particular vendor.

16. (Original) The method of Claim 9, further comprising communicating results of said at least one failure analysis function from the targeted switching devices to an operator of the targeted switching devices or the communication network.

17. (Original) The method of Claim 16, wherein the results from said at least one failure analysis function are communicated to the operator of said targeted switching devices by passing the results to a data station.

18. (Previously Presented) The method of Claim 17, wherein the results are passed to the data station via at least one communication link that connects at least one of the targeted switching devices to the data station.

19. (Original) The method of Claim 17, wherein the results are passed to the data station by passing information from at least one of the targeted switching devices to another switching device along the connection path, said another switching device passing the results to the data station.

20. (Original) The method of Claim 9, wherein said targeted switching devices comprise switching devices along a specific portion of the connection path.

21. (Original) The method of Claim 9, wherein said targeted switching devices comprise switching devices that are members of a logical peer group in an ATM hierarchy.

22. (Original) The method of Claim 9, wherein the network comprises a PNNI (Private Network-Network Interface) network.

23. (Previously Presented) The method of Claim 9, further comprising:  
identifying said plurality of switching devices comprising the connection path;  
identifying a switching device along the connection path corresponding to a failure point in the connection path;  
forwarding the message from switching device to switching device along the connection path until it reaches the switching device corresponding to the failure point;  
and  
encoding the debug IE so as to instruct the switching device corresponding to the failure point to perform at least one failure diagnostic functions to identify why the switching device failed.

24. (Original) An article of manufacture comprising a computer-readable medium having computer-executable instructions for performing the functions of:

- receiving a data packet containing a debug information element (IE);
- extracting the debug IE from the data packet;
- performing at least one diagnostic function on a network switching device in response to information contained in the debug IE.

25. (Previously Presented) The article of manufacture of claim 24 wherein the computer-executable instructions further perform the function of communicating results of said at least one diagnostic function from the network switching device to a selected end point connected to the network switching device via a communications link.

26. (Previously Presented) An article of manufacture comprising a computer-readable medium having computer-executable instructions for performing the functions of:

- generating a debug information element (IE) having a format so that it may be propagated transparently across a network of switching devices that are not configured to recognize the debug IE;
- embedding the debug IE in a message; and
- receiving results of at least one failure diagnostic function from a network switching device configured to respond to the debug IE.

27. (Original) The article of manufacture of Claim 26, wherein the debug IE is embedded in a connection-management message.

28. (Previously Presented) The article of manufacture of Claim 26, wherein the debug IE includes information specifying a network switching device on which the at least one failure diagnostic function is performed.